

E0509

CF<sub>4</sub> + H<sub>2</sub>O PLASMA ASHING FOR REDUCTION OF  
CONTACT/VIA RESISTANCE

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Abstract of the Disclosure

10 The degradation of deposited low dielectric  
constant interlayer dielectrics and gap fill layers,  
such as HSQ layers, during formation of contacts/vias is  
significantly reduced or prevented by employing a plasma  
containing CF<sub>4</sub> + H<sub>2</sub>O to remove the photoresist mask and  
cleaning the contact/via opening after anisotropic  
etching. The CF<sub>4</sub> + H<sub>2</sub>O plasma also enables rapid  
15 photoresist stripping at a rate of about 10 to about  
20KÅ/min. Embodiments include photoresist stripping and  
cleaning the contact/via opening with a CF<sub>4</sub> + H<sub>2</sub>O plasma  
to prevent reduction of the number of Si-H bonds of an  
as-deposited HSQ layer below about 70%.

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